

CLAIMS

What is claimed is:

1. A method for processing language input comprising the steps of:
determining at least two possible meanings for a language input;
for each possible meaning, determining a probability that said possible meaning is a correct interpretation of said language input;
computing at least one relative delta computation based at least in part upon said probabilities;
detecting at least one irregularity within said language input based upon said relative delta computation; and
performing at least one programmatic action responsive to detecting said irregularity.
2. The method of claim 1, wherein said irregularity comprises mumble.
3. The method of claim 1, wherein said irregularity comprises ambiguous input.
4. The method of claim 1, wherein said irregularity comprises compound input.
5. The method of claim 1, wherein said at least one irregularity detected by said method comprises two or more irregularities, said method further comprises the step of:
differentiating between different ones of said irregularities such that different programmatic actions are performed responsive to detecting different irregularities.
6. The method of claim 1, wherein said programmatic action comprises the step of prompting a user for further input to resolve said irregularity.
7. The method of claim 1, said computing step further comprising the steps of:
computing a numerator by subtracting a probability of a second one of said meanings from the probability of a first one of said meanings;
setting a denominator to the probability of said first meaning; and

dividing said numerator by said denominator.

8. The method of claim 1, further comprising the step of receiving a top-n list of possible meanings for said language input, wherein said determining of possible meanings further comprises selecting at least two possible meanings contained within said top-n list.

9. The method of claim 8, wherein said possible meanings of said top-n list are each associated with a probability that said possible meaning is a correct interpretation of said language input, said selecting step further comprises the step of selecting said two possible meanings having the highest probabilities.

10. The method of claim 1, wherein said at least two possible meanings comprise at least three possible meanings, said method further comprises ordering said possible meanings according to said probabilities, wherein said computing step further comprises the steps of:

- computing a first relative delta computation based upon two sequentially ordered ones of said possible meanings; and

- computing a second relative delta computation based upon two different sequentially ordered ones of said ordered meanings, wherein said detecting of said irregularity is based upon said first relative delta computation and said second relative delta computation.

11. The method of claim 1, wherein said probability that each possible meaning is a correct interpretation is a confidence value; said method further comprising the steps of:

- receiving a plurality of language inputs;

- for each language input, determining at least two possible meanings and associated confidence values;

- plotting at least a portion of said confidence values on a graph; and

- determining at least one threshold from said graph, wherein said relative delta computation is compared against said threshold when detecting said irregularity.

12. The method of claim 11, further comprising the step of:
presenting said graph within a graphical user interface; and
automatically adjusting said threshold using controls of said graphical user interface.
13. A system for processing language input comprising:
a natural language processor configured to convert a language input into a plurality of possible meanings and to assign a confidence value to each of said possible meanings; and
an anomaly detector configured to detect the occurrence of at least one irregularity within said language input using at least one relative delta computation.
14. The system of claim 13, further comprising:
a training engine configured to generate thresholds used by said anomaly detector to detect said irregularities.
15. The system of claim 13, wherein said anomaly detector further comprises a relative delta score calculator configured to calculate relative delta computations.
16. The system of claim 13, wherein said anomaly detector further comprises a relative delta score interpreter configured to compare relative delta computations to threshold values to detect said irregularities.
17. The system of claim 13, wherein said anomaly detector further comprises a learning module configured to adjust threshold values base upon operational behavior.
18. A machine-readable storage having stored thereon, a computer program having a plurality of code sections, said code sections executable by a machine for causing the machine to perform the steps of:
determining at least two possible meanings for a language input;

for each possible meaning, determining a probability that said possible meaning is a correct interpretation of said language input;

computing at least one relative delta computation based at least in part upon said probabilities;

detecting at least one irregularity within said language input based upon said relative delta computation; and

performing at least one programmatic action responsive to detecting said irregularity.

19. The machine-readable storage of claim 18, wherein said irregularity comprises mumble.

20. The machine-readable storage of claim 18, wherein said irregularity comprises ambiguous input.

21. The machine-readable storage of claim 18, wherein said irregularity comprises compound input.

22. The machine-readable storage of claim 16, wherein said at least one irregularity detected by said method comprises two or more irregularities, said method further comprises the step of:

differentiating between different ones of said irregularities such that different programmatic actions are performed responsive to detecting different irregularities.

23. The machine-readable storage of claim 18, wherein said programmatic action comprises the step of prompting a user for further input to resolve said irregularity.

24. The machine-readable storage of claim 18, said computing step further comprising the steps of:

computing a numerator by subtracting a probability of a second one of said meanings from the probability of a first one of said meanings;

setting a denominator to the probability of said first meaning; and
dividing said numerator by said denominator.

25. The machine-readable storage of claim 18, further comprising the step of receiving a top-n list of possible meanings for said language input, wherein said determining of possible meanings further comprises selecting at least two possible meanings contained within said top-n list.

26. The machine-readable storage of claim 25, wherein said possible meanings of said top-n list are each associated with a probability that said possible meaning is a correct interpretation of said language input, said selecting step further comprises the step of selecting said two possible meanings having the highest probabilities.

27. The machine-readable storage of claim 18, wherein said at least two possible meanings comprise at least three possible meanings, said method further comprises ordering said possible meanings according to said probabilities, wherein said computing step further comprises the steps of:

- computing a first relative delta computation based upon two sequentially ordered ones of said possible meanings; and

- computing a second relative delta computation based upon two different sequentially ordered ones of said ordered meanings, wherein said detecting of said irregularity is based upon said first relative delta computation and said second relative delta computation.

28. The machine-readable storage of claim 18, wherein said probability that each possible meaning is a correct interpretation is a confidence value; said method further comprising the steps of:

- receiving a plurality of language inputs;

- for each language input, determining at least two possible meanings and associated confidence values;

- plotting at least a portion of said confidence values on a graph; and

determining at least one threshold from said graph, wherein said relative delta computation is compared against said threshold when detecting said irregularity.

29. The machine-readable storage of claim 28, further comprising the step of:
presenting said graph within a graphical user interface; and
automatically adjusting said threshold using controls of said graphical user interface.

30. A system for processing language input comprising the steps of:
means for determining at least two possible meanings for a language input;
means for determining a probability that said possible meaning is a correct interpretation of said language input for each possible meaning;
means for computing at least one relative delta computation based at least in part upon said probabilities;
means for detecting at least one irregularity within said language input based upon said relative delta computation; and
means for performing at least one programmatic action responsive to detecting said irregularity.